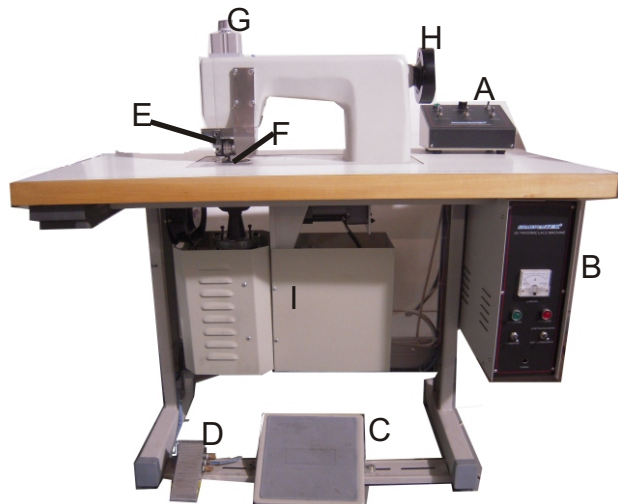




Production Grade Ultrasonic Lace/Sewing Machine



- A - Table Top Switch Panel Interface
- B - Frame Mounted Switch Panel Interface
- C - Main Feed Pedal
- D - Rotating Work Head Lower Pedal
- E - Rotating Work Head Die
- F - Ultrasonic Mould
- G - Rotating Work Head Set Height Adjust
- H - Rotating Work Head Manual Feed
- I - Ultrasonic Booster and Power Source

Overview

The SharperTek ultrasonic sewing machine joins plastic and rubber film products. Its operation is simple, resembling a normal sewing machine's operation.

Highly productive and versatile, the machine can join and slit in one process. The bonded joint produced is attractive, strong and durable.

The machine joins materials using ultrasonic technology. A rotating work head die, located in the upper armature of the machine, is lowered to the table's work surface and pinches rubber or plastic films between itself and an ultrasonic mould located in the table top. The ultrasonic mould transmits ultrasonic energy, and the rotating work head die feeds the pinched films through the joining process creating a permanent, bonded joint.

Power up and configure the machine using each of two switch panel interfaces: one located on the table top, the other located below in the machines frame. The table top switch panel interface configures the machines feed operation. The frame mounted switch panel interface configures the machines ultrasonics.

You can adjust the rotating work head die set height by rotating the large nut located on top of the machines armature.

You can tune the ultrasonic frequency by rotating a recessed rheostat located on the frame mounted switch panel interface.

You can alter the machines joining pattern by replacing the rotating work head die located in the armature of the machine.

Switch Panel Interfaces



Table Top Switch Panel

Using The Switch Panel Interfaces

Table Top Switch Panel Interface

Power Supply On/Off. This enables the upper armature feed mechanism, turns on the cooling fan and readies the machine for operation.

Feeding On/Off. This enables the rotating work head die's rotation. It will not rotate in any mode until this switch is in the On position.

Mould Rotation On/Off. This enables the ultrasonic mould's rotation. The ultrasonic mould will rotate continuously if this switch is in the on position and feed is activated.

Auto/Hand Up/Down. This selects how the rotating work head die is rotated. In the up, or Auto position, it is rotated continuously whenever the ultrasonic generator is engaged. In the down, or Hand position, it is rotated only when the operator engages the process by depressing the large foot pedal on the base of the machine. NOTE: in the middle detent position, no feed is enabled.

Speed Adjustment Rotate. This adjusts the rotating work head die rotational feed speed. Clockwise rotation increases feed speed, counterclockwise rotation decreases feed speed.

Switch Panel Interfaces



Frame Mounted Switch Panel

Using The Switch Panel Interfaces

Frame mounted switch panel interface

Power SW Up/Down. This enables the ultrasonics. Toggle the switch up for on, toggle the switch down for off.

Continuous Work/Test Ultrasonics Down/Middle/Continuous Work. This switch determines how the ultrasonics works with the armature feed. Select up for continuous operation. Select the middle position for foot pedal operation. Select the momentary down position to enable the ultrasonics for testing.

NOTE: When you select Auto on the table top switch interface Auto/Hand switch, you must select Continuous Work. When you select Hand on the table top switch interface Auto/Hand you must select the middle position of this switch.

Overload Illuminated/Not. When the ultrasonics is overloaded the Overload light is illuminated.

Power Ind. Illuminated/Not. When the power switch is Up, the Power Ind. Light is illuminated.

Amp Meter. This meter indicates the loading factor of the ultrasonics.

Power Up And Adjustments

Typical Power Up And Usage Sequence

Turn on Armature Control
Turn on Ultrasonic Control
Select Continuous or Hand Feed
Note: Foot Pedal Enabled only with Hand Feed Selected
Set Feed Rate
Turn on Feeding
Turn on Mould Rotation if Required
Lower Rear Material Guide By Operating Lever At Rear Of Armature
Insert Material Between Work head Die And Mould
Depress Left Pedal (small) To Lower Work Head Die
Depress Right Pedal (large) To Enable Feed

Note: Feeding Switch Must Be On for Either Continuous or Pedal Feed

Adjustments

Frequency Adjustment

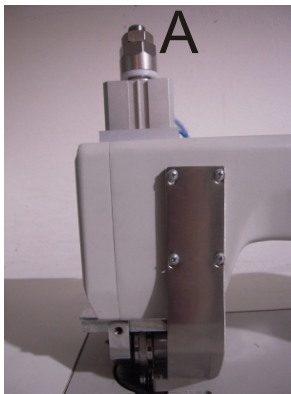
Tune the ultrasonic frequency by operating the front mounted tuning dial located on the ultrasonic control panel.

Material Thickness Adjustment

Located atop the work armature is a large locking nut adjustment. To set the tools work height, loosen the locking jamb nut, and turn the large nut by hand. Counterclockwise turns lower the rotating work head die, clockwise turns raise it.

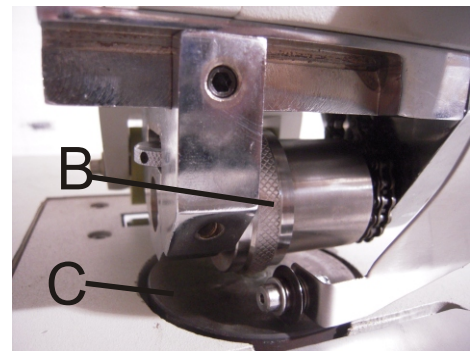
NOTE: The working head should NEVER come in contact with the rotating mould surface of the ultrasonic horn. Use care to ensure that there is no contact between the two metal surfaces.

Adjust the rotating work head die such that the material is pressed together between the rolling working head and the rotating mould. The pressure of the head working against the fabric friction feeds the material through the ultrasonic process.

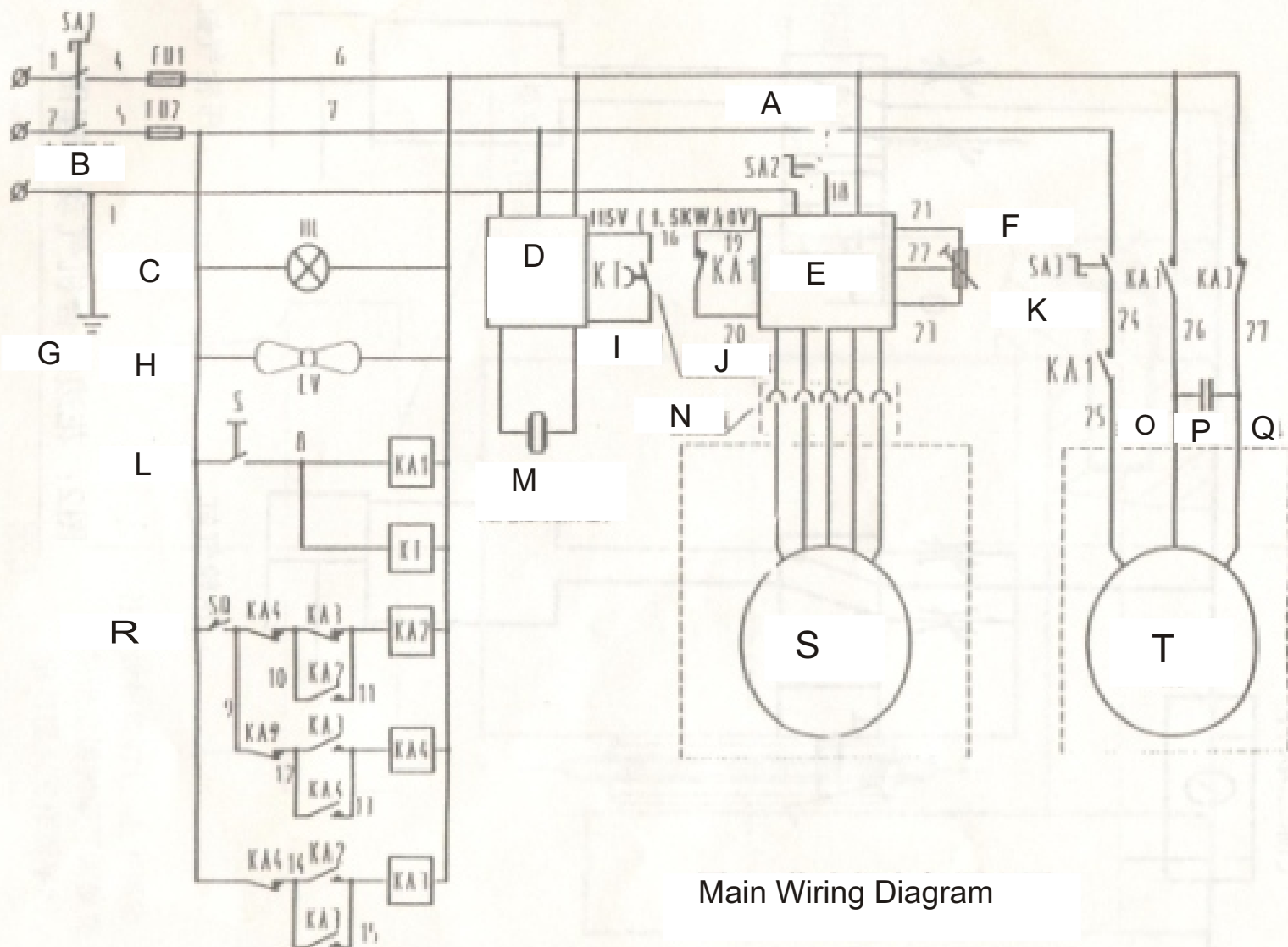


Rotate the adjustment knob A so that the rotating work head die B pinches the materials and feeds them through across the rotating mould surface C.

Do not allow the adjustment of A to cause the surface of the work head die B to come in contact with the rotating mould surface C. Damage may occur.



Wiring Diagram

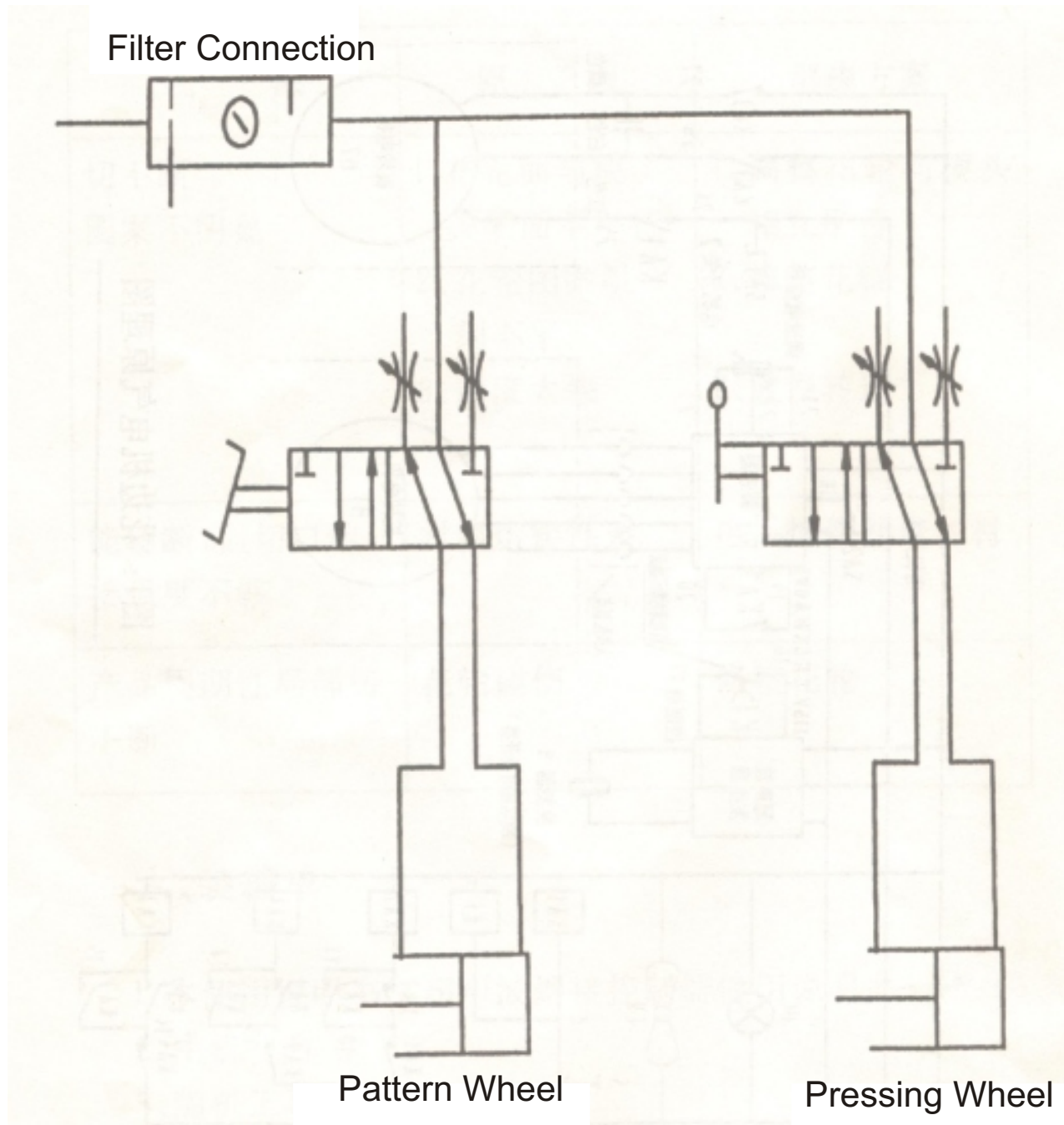


Main Wiring Diagram

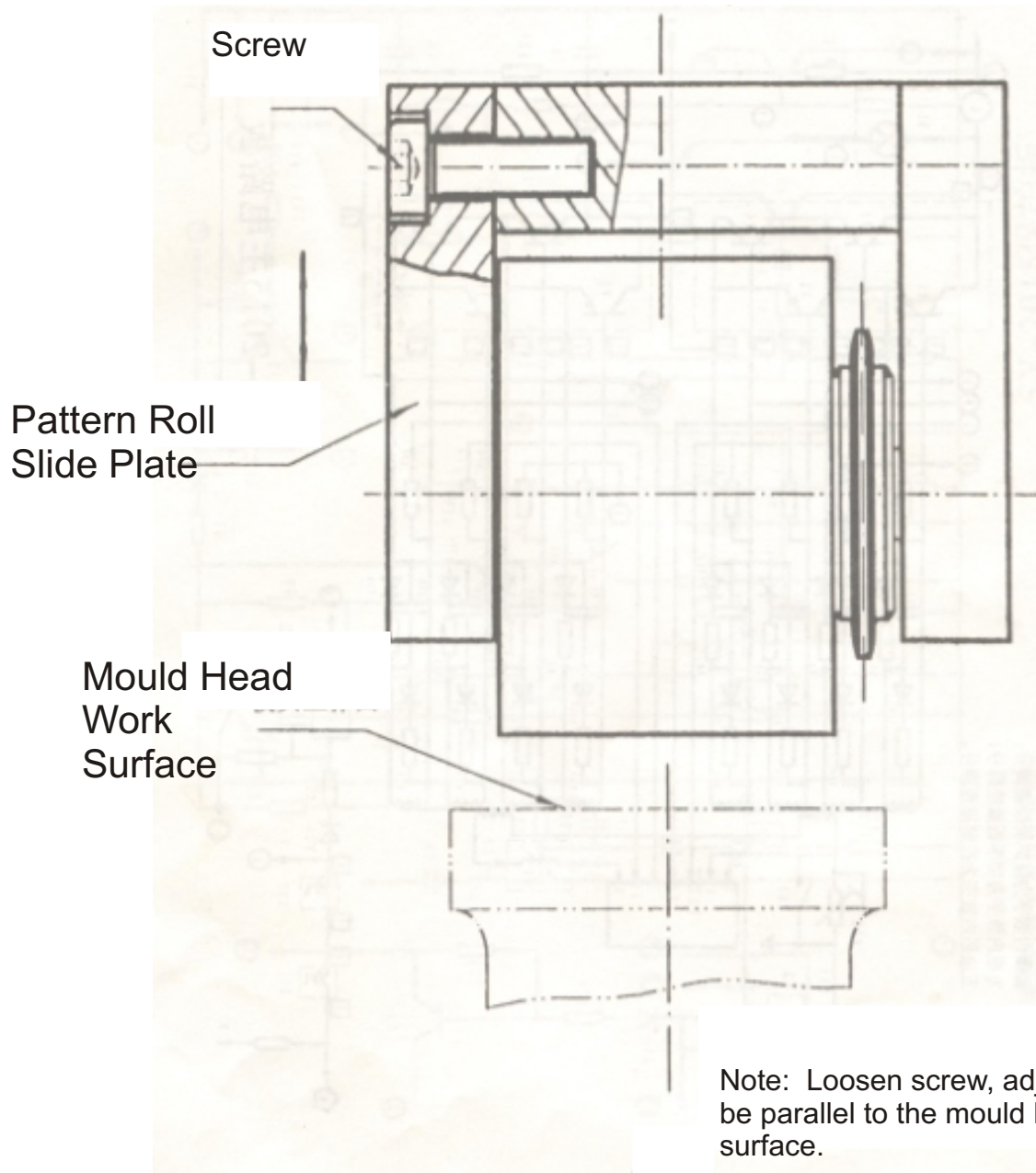
A - Electrode Switch
 B - Electric Supply Switch
 C - Electric Supply Indicator
 D - Ultrasonic Generator
 E - Motor Speed Regulator
 F - Potentiometer For Adjusting Speed
 G - Ground
 H - Cooling Fan
 I - Control Wall
 J - Off Delay Timer

K - Motor Switch
 L - Foot Control Switch
 M - Energy Exchanger B
 N - Entrance Control Point
 O - Red
 P - White
 Q - Black
 R - Spin Position Restriction Switch
 S - Motor M1
 T - Motor M2

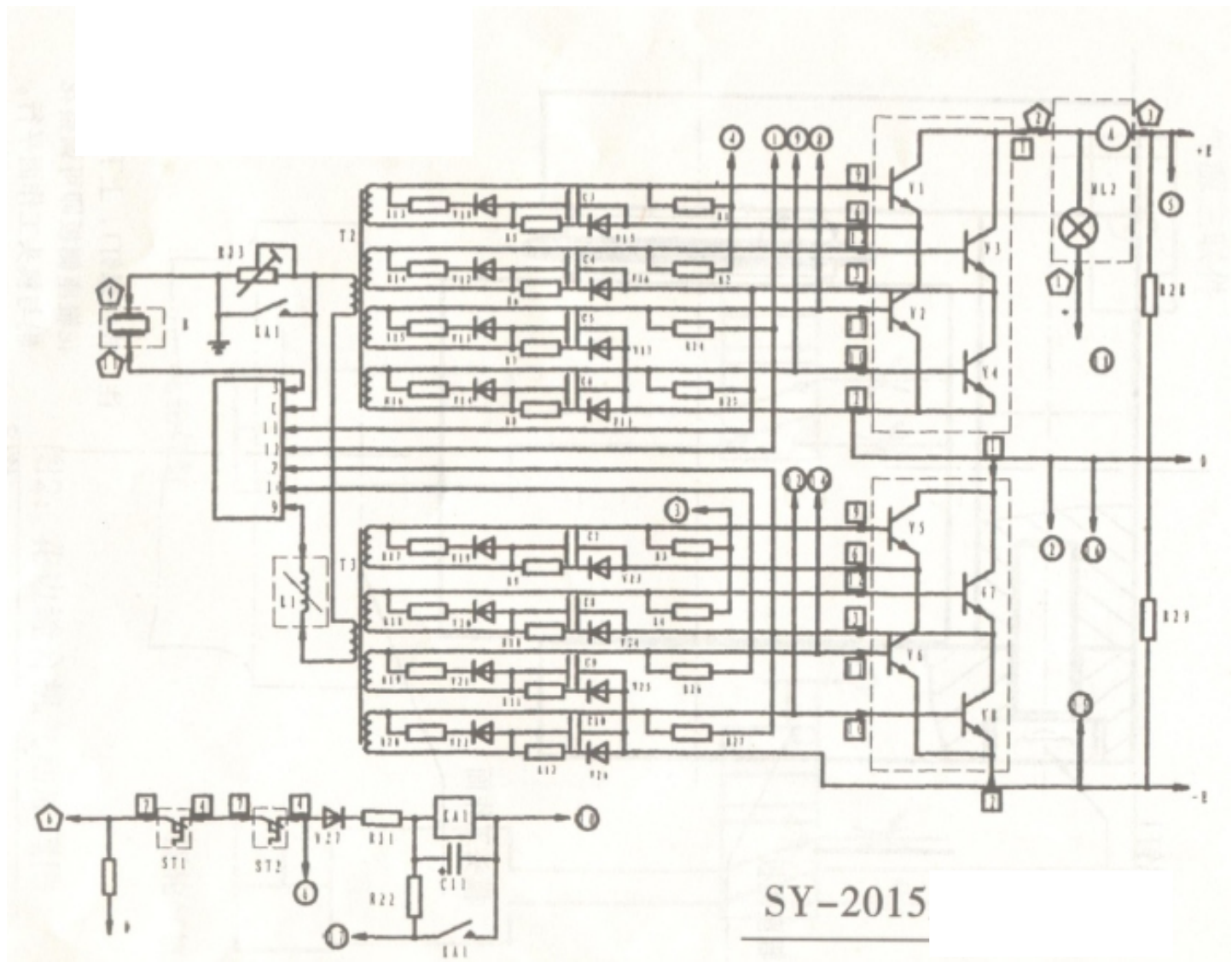
Pneumatic Diagram



Die And Mould Assembly



SY-2015 Main Circuit Board



SY-2015 Protection Board

